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EP 1077427 A
EP 0860980 A
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FR 002787225 A
US 6192416 A

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(54) Abstract Title
System and method for exchange of digital data from personal appliances

(57) A system and method are provided for facilitating remote exchange of digital data from remote personal appliances for example digital cameras (146). The system comprises a stand-alone kiosk (103) with a computer system (106) located therein. The computer system (106) includes a processor (109) linked to a local interface (116) and a memory (113) linked to the local interface (116). The local interface (116) may be, for example, a data bus and a control bus. A personal appliance interface (133) is linked to the local interface (116) to facilitate communication with one of a number of personal appliances (146). The system also includes exchange logic (150) stored on the memory (113) and executed by the processor (109). The exchange logic (150) includes logic to poll a personal appliance (146) via the personal appliance interface (133) to obtain a personal appliance designation, logic to compare the personal appliance designation with a number of stored device designations from a driver library to determine an associated personal appliance driver, and logic to employ the associated personal appliance driver to establish a data transfer link with the personal appliance (146).

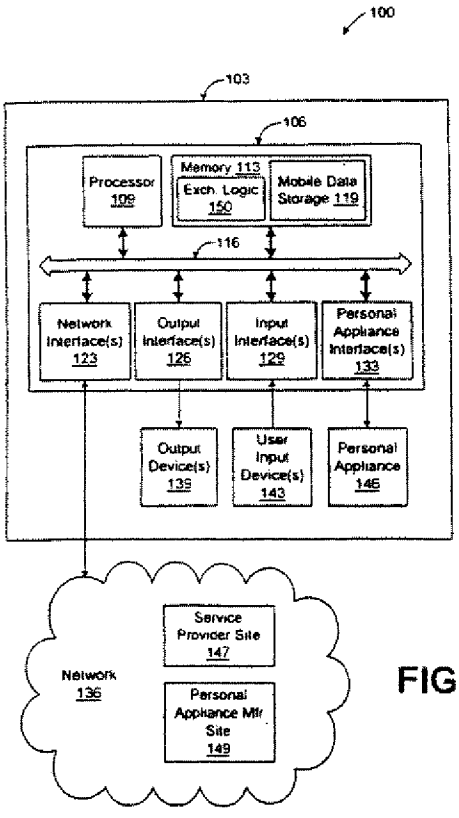

FIG. 1

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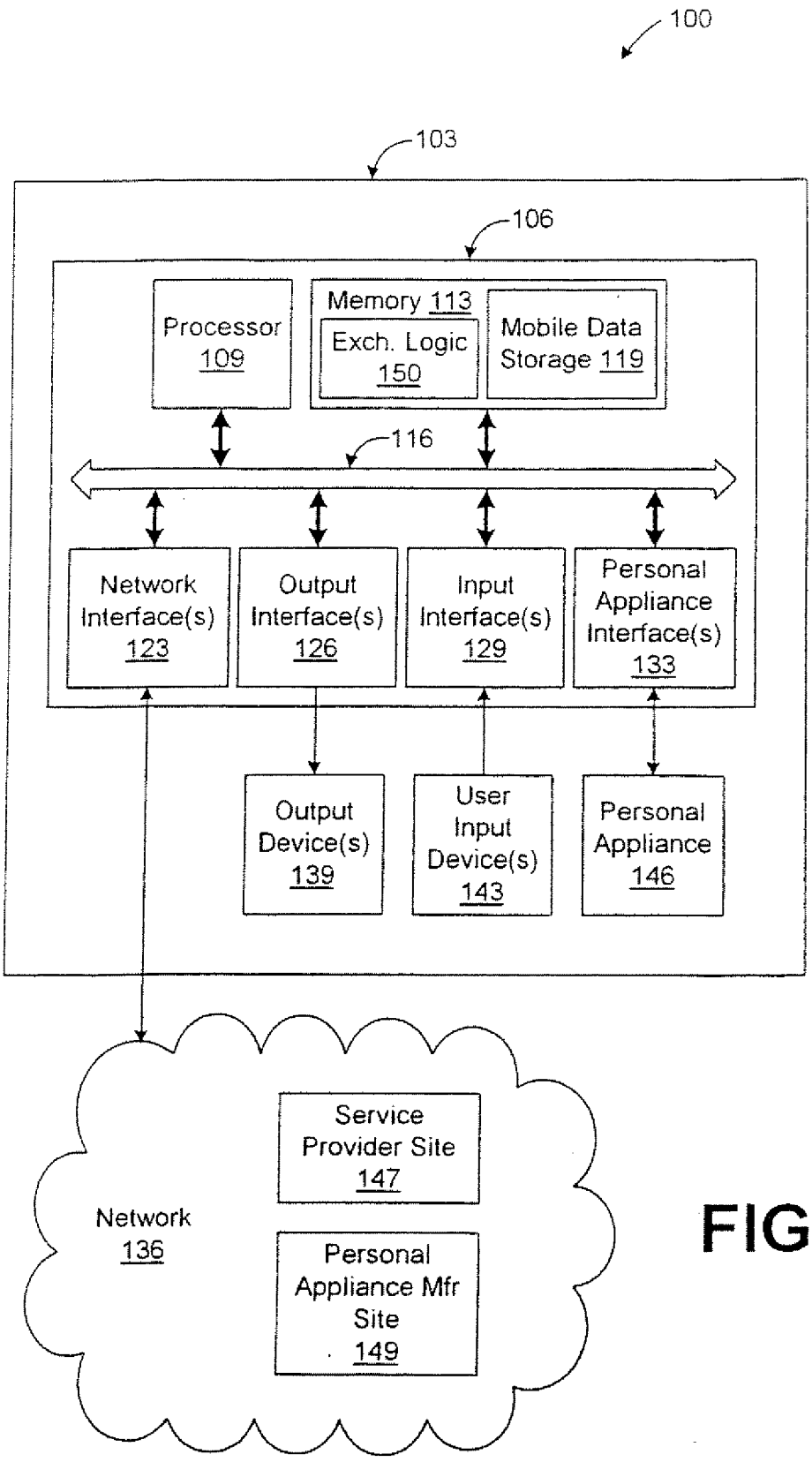
100
103
106
Processor 109
Memory 113
Exch. Logic 150
Mobile Data Storage 119
116
Network Interface(s) 123
Output Interface(s) 126
Input Interface(s) 129
Personal Appliance Interface(s) 133
Output Device(s) 139
User Input Device(s) 143
Personal Appliance 146
Network 136
Service Provider Site 147
Personal Appliance Mfr Site 149

FIG. 1

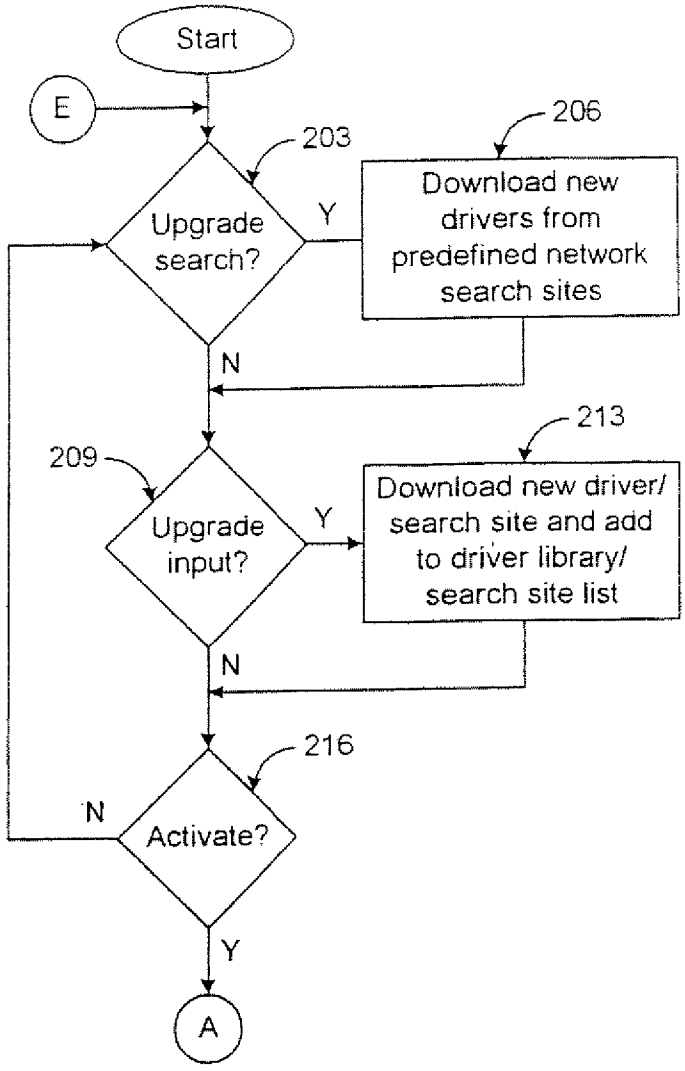
Start
E
203
206
Upgrade search?
Y
Download new drivers from predefined network search sites
N
213
209
Upgrade input?
Y
Download new driver/ search site and add to driver library/ search site list
N
216
N
Activate?
Y
A
150

FIG. 2A

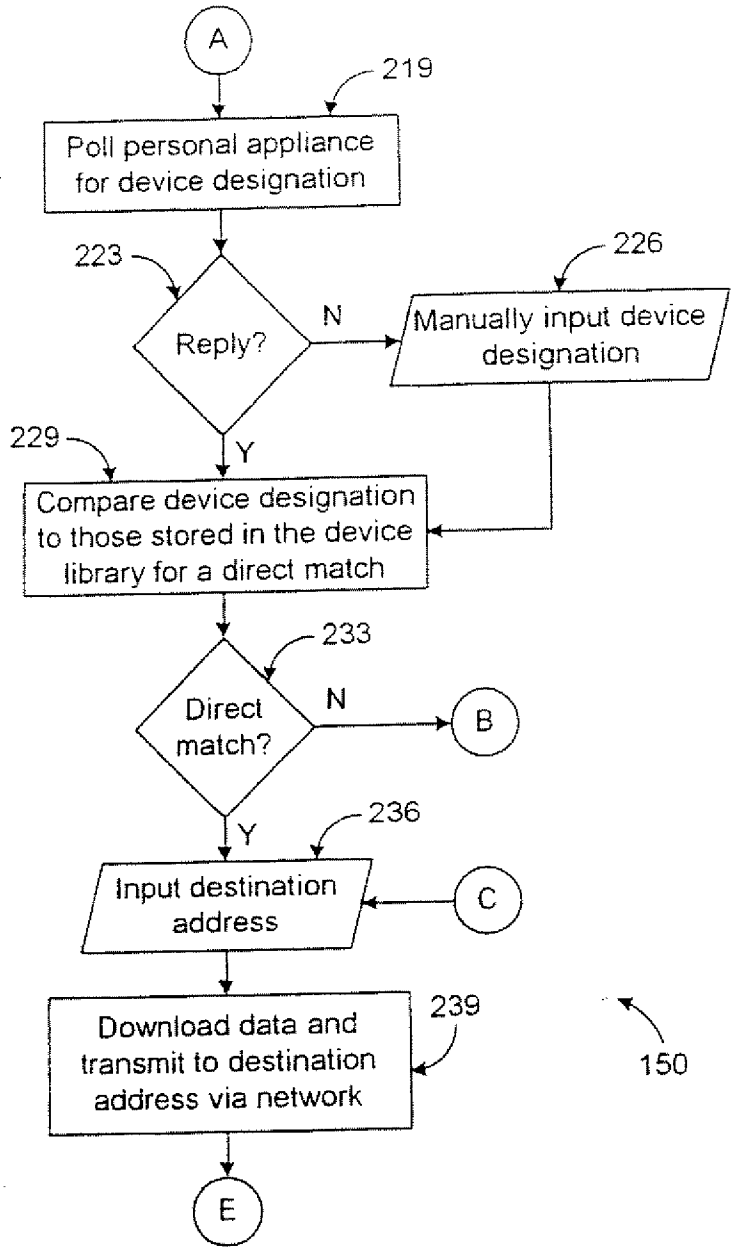
A
219
Poll personal appliance for device designation
223
Reply?
N
226
Manually input device designation
Y
229
Compare device designation to those stored in the device library for a direct match
233
Direct match?
N
B
Y
236
Input destination address
C
Download data and transmit to destination address via network
239
150
E

FIG. 2B

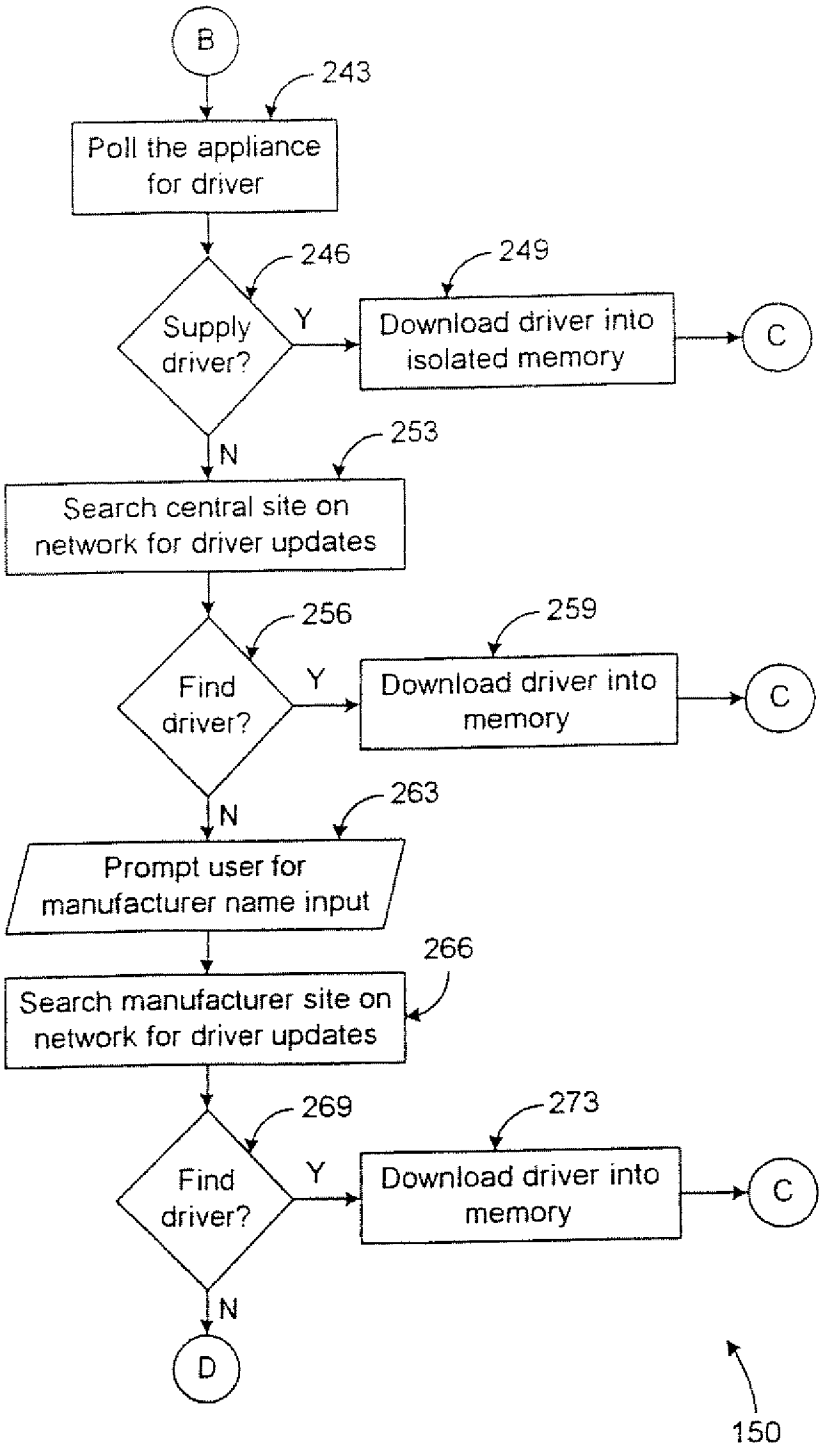
B
243
Poll the appliance for driver
246
Supply driver?
Y
249
Download driver into isolated memory
C
N
253
Search central site on network for driver updates
256
Find driver?
Y
259
Download driver into memory
C
N
263
Prompt user for manufacturer name input
266
Search manufacturer site on network for driver updates
269
Find driver?
Y
273
Download driver into memory
C
N
D
150

FIG. 2C

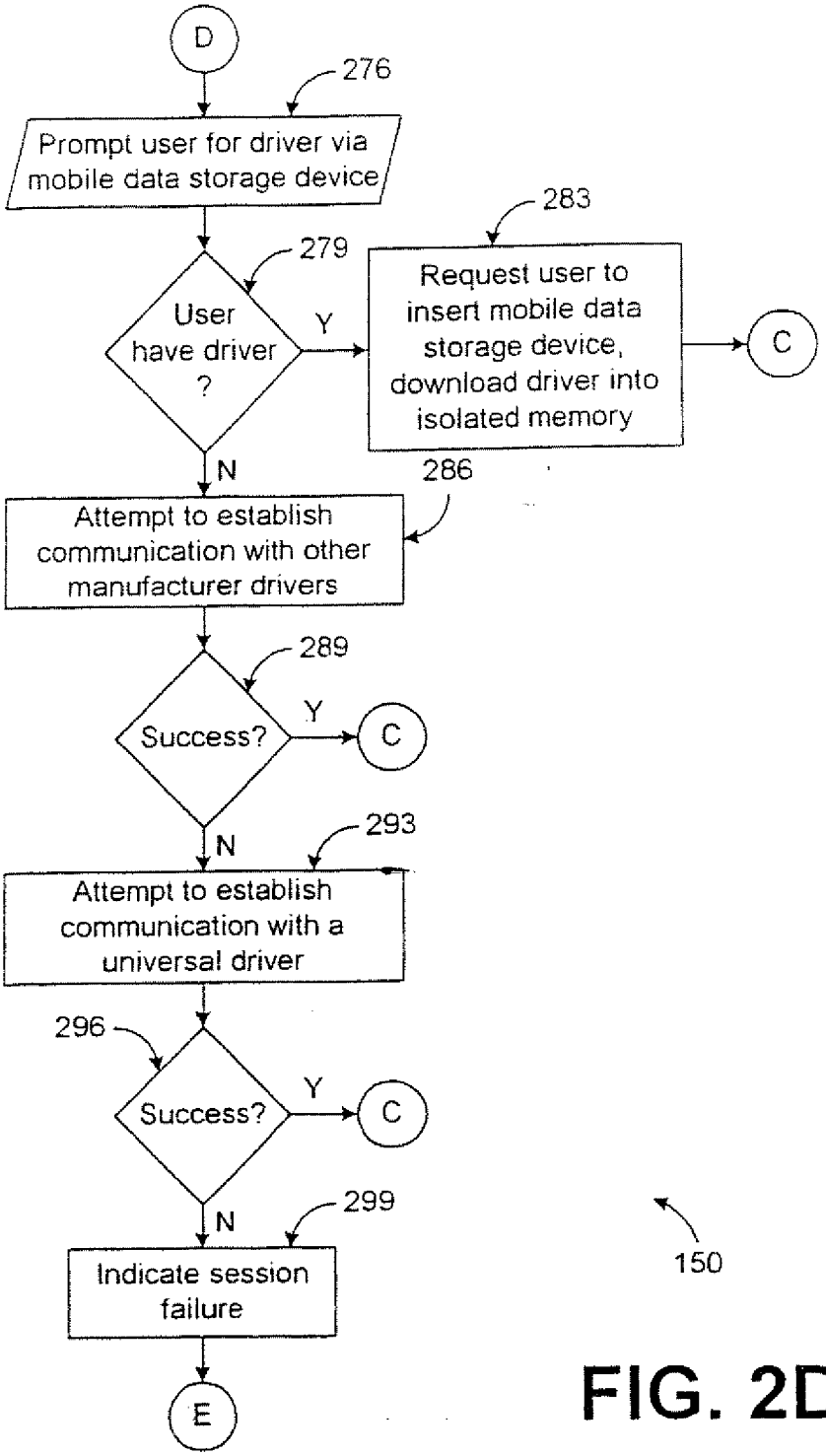
D
276
Prompt user for driver via mobile data storage device
283
279
User have driver ?
Y
Request user to insert mobile data storage device, download driver into isolated memory
C
N
286
Attempt to establish communication with other manufacturer drivers
289
Success?
Y
C
N
293
Attempt to establish communication with a universal driver
296
Success?
Y
C
N
299
Indicate session failure
E
150

FIG. 2D

SYSTEM AND METHOD FOR EXCHANGE OF DIGITAL DATA

TECHNICAL FIELD

The present invention is generally related to the field of data communication and, more particularly, is related to a system and method for exchange of data.

BACKGROUND OF THE INVENTION

With the dawn of the information age, more and more portable personal appliances are being created that generate and store digital data. The personal appliances may include laptop computers, measuring devices, magnetic disks, magnetic tapes, magnetic strips on cards, encryption cards, medical information cards, music players, capture devices such as digital cameras, and other devices. Many of these devices only have a limited capacity for data storage. Consequently, the usefulness of such devices is limited.

For example, capture devices, such as digital cameras, may only have a specific amount of memory for data storage. In many digital cameras, a digital image that is generated when one takes a picture is comprised of a significant number of pixels. Such images thus require a significant amount of memory for storage. As a result, the typical digital camera is only capable of taking a limited number of pictures before the memory runs out. At that point, the images must be downloaded from the digital camera to free up memory space for more pictures. Likewise, memory in many different types of devices may be filled up during operation and the usefulness of the device is compromised in a similar manner.

SUMMARY OF THE INVENTION

In light of the foregoing, the present invention provides for a system and method for facilitating remote exchange of digital data from portable personal appliances. According to one embodiment, a system is provided that comprises a stand-alone kiosk with a computer system located therein. The computer system includes a processor linked to a local interface and a memory linked to the local interface. The local interface may be, for example, a data bus and a control bus. A personal appliance interface is linked to the local interface to facilitate communication with one of a number of personal appliances.

The system also includes exchange logic stored on the memory and executed by the processor. The exchange logic includes logic to poll a personal appliance via the personal appliance interface to obtain a personal appliance designation, logic to compare the personal appliance designation with a number of stored device designations from a driver library to determine an associated personal appliance driver, and logic to employ the associated personal appliance driver to establish a data transfer link with the personal appliance.

In another embodiment, the present invention also includes a method for facilitating remote exchange of digital data from remote personal appliances. Broadly stated, the method comprises the steps of: providing a stand-alone kiosk for digital data exchange, coupling a personal appliance to a data exchange system to establish data communications therebetween, polling the personal appliance to obtain a personal appliance designation, comparing the personal appliance designation with a number of stored device designations from a driver library to determine an associated personal appliance driver, and employing the associated personal appliance driver to establish a data transfer link with the personal appliance.

Other features and advantages of the present invention will become apparent to one with skill in the art upon examination of the following drawings and detailed description. It is intended that all such additional features and advantages be included herein within the scope of the present invention.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The invention can be better understood with reference to the following drawings. The components in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the present invention. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

FIG. 1 is a block diagram of a digital exchange system according to an embodiment of the present invention; and

FIGS. 2A-2D are flow charts of exchange logic employed by the digital exchange system of FIG. 1.

DETAILED DESCRIPTION OF THE INVENTION

With reference to FIG. 1, shown is a remote data exchange system 100 according to an embodiment of the present invention. The remote data exchange system 100 includes a kiosk 103 that may be placed in any number of locations to service the general public. In particular, the kiosk 103 is particularly suited to be placed in locations, for example, of common tourist attractions or where generally it is accessible to the general public, *etc*. The remote data exchange system 100 advantageously facilitates the exchange of data, including digital data that is acquired through various personal appliances. For example, a typical personal appliance, such as a digital camera, only has a limited amount of memory in which it can store pictures taken by the users. The remote data exchange system 100 allows the user to download the digital images from the digital camera and transmit them to a remote location via a network such as, for example, the Internet. A service provider generally maintains the remote data exchange system 100. The service provider is generally an entity who may own the remote data exchange system 100 and generally provides for the maintenance thereof.

The kiosk 103 may comprise a complete or partial enclosure or booth that provides protection from outdoor elements such as rain, sun, heat, snow, *etc*. Alternatively, the kiosk 103 may also comprise a console within an indoor location that may comprise a complete or partial enclosure or booth that services the general public, *etc*.

The remote data exchange system 100 includes a computer system 106 that is housed within the kiosk 103. The computer system 106 includes a processor 109 and a memory 113, both of which are coupled to a local interface 116. The local interface 116 may comprise a data bus and corresponding control bus as known by those skilled in the art. The memory 113 may include volatile and/or nonvolatile memory components. Volatile components are those that do not retain data values upon loss of power. Conversely, nonvolatile components retain data upon a loss of power. Thus, the memory 113 may comprise, for example, random access memory (RAM) or read-only memory (ROM). The memory 113 may also include one or more mobile data storage devices 119 such as hard disk drives, floppy disk drives, compact disk drives, tape drives, and other like memory components.

The computer system 106 further comprises network interface(s) 123, output

interface(s) 126, input interface(s) 129, and personal appliance interface(s) 133. The network interface 123 links a network 136 to the local interface 116 whereby data may be exchanged between the computer system 106 and a location on the network 136. The network 136 may comprise, for example, the Internet, a local area network, a wide area network, or other similar networks. The output interface(s) 126 makes data available on the local interface 116 to one or more various output devices 139. The output devices may comprise, for example, display devices such as a cathode ray tube (CRT), a liquid crystal display screen, a gas plasma-based flat panel display, indicator lights, light emitting diodes, and other display devices. The output device(s) 139 may also include, for example, money exchange devices that have both input and output connections to the computer system 106.

The computer system 106 also includes one or more user input devices 143 that generate data that is made available on the local interface 116 via the input interface(s) 129. The user input devices 143 may comprise, for example, a keyboard, push buttons, a microphone, money exchange devices, or other similar input devices. The personal appliance(s) 146 may comprise one of any number of various types of devices, for example, such as, laptop computers, palm computers, measuring devices, magnetic disks, magnetic tapes, magnetic strips on cards and the like, compact disks, encryption cards, medical information cards, music players, capture devices such as digital cameras, and other devices that might benefit from a connection to a network. On the network 136 are a service provider site 147 and at least one manufacturer site 149 that manufactures a particular personal appliance 146.

Stored in the memory 113 is exchange logic 150 that is generally executed by the processor 109 and controls the functionality of the computer system 106. In particular, the exchange logic 150 controls the interaction between the computer system 106 and the various input devices 143, output devices 139, and personal appliances 146. Specifically, the exchange logic 150 includes a driver library that contains a number of personal appliance drivers that are employed by the computer system 106 to interface with any one of a number of different personal appliances 146. The present invention advantageously includes the ability to automatically download new personal appliance drivers from locations on the network 136 that correspond with new personal appliances 146. In this manner, the remote data

exchange system 100 is kept up to date to allow data exchange with the latest personal appliances 146 as such technology evolves.

Next, the general operation of the remote data exchange system 100 is described. The remote data exchange system 100 remains in an idle operating state until activated by a user. During the idle state, the remote data exchange system 100 may perform periodic searches of predetermined sites on the network 136 to download any device drivers that it may employ in communicating with various personal appliances, *etc.* In addition, the remote data exchange system 100 may receive new personal appliance drivers and other updates to its operating software from a service provider that remotely maintains the system 100 via the network 136. In this manner, the remote data exchange system 100 is kept up to date with the latest personal appliances 146.

The remote data exchange system 100 also facilitates data exchange transactions that are initiated by a user. The user may activate the system 100, for example, by feeding currency into the system 100 and linking the personal appliance 146 to the computer system 106. The remote data exchange system 100 then facilitates downloading data from the personal appliance 146 using appropriate device drivers and transmits the data to a user defined location on the network 136.

With reference to FIG. 2A, shown is a flow chart of the exchange logic 150 according to an embodiment of the present invention. The computer system 106 often remains in an idle state that is interrupted at predefined times to undertake various actions to upgrade a number of drivers or other aspects of the exchange logic 150. When activated by a user to transfer data, the remote data exchange system 100 performs various tasks necessary to effect an exchange of data between a user and a user-defined destination on the network 136 (FIG. 1).

Beginning with block 203, the exchange logic 150 determines whether a condition exists triggering the computer system 106 to perform a search on the network 136 for new personal appliance drivers to include in the appliance driver library stored in the memory 113. The search may entail the examination of, for example, service provider site 147 or one or more personal appliance manufacturer sites, *etc.* If the condition exists, then the exchange logic 150 progresses to block 206. For example, one such condition may be that the exchange logic 150 is set to

periodically perform the searches at predetermined times such as, for example, daily searches.

In block 206, the exchange logic 150 downloads any new drivers discovered in search sites 147/149. Thereafter, the exchange logic 150 progresses to block 209. If the condition in block 203 is not present, then the logic progresses directly to block 209.

In block 209, the exchange logic 150 determines whether an input from the network 136 has been received to update either the exchange logic 150 itself or to add new appliance drivers to the appliance driver library. Such input would be transmitted by the service provider via the network 136. Thus, in block 209, the upgrade is initiated by a party via a remote device on the network 136 as opposed to the upgrade of block 203 in which the computer system 106 initiates a download from the network 136. If in block 209, such an input is received, then the exchange logic 150 moves to block 213 in which the new appliance driver or other logic upgrade is downloaded and incorporated into the exchange logic 150 or the driver library, whichever is appropriate. For example, the service provider may download new search sites 147/149 on the network 136 for the logic 150 to examine when searching the network 136 in block 206. If there is no upgrade input in block 209 or once the upgrade is executed in block 213, then the exchange logic 150 progresses to block 216 in which it is determined whether an activation condition exists in the computer system 106.

The activation condition may comprise, for example, an input of currency into a money exchange device that is included as one of the user input devices 143 (FIG. 1) of the computer system 106. In this manner, a user activates the system to facilitate an exchange of data. Also, an activation condition may comprise an entry of a user account or other payment means by using a keyboard or scanning credit cards, *etc.* In such case, the user input devices 143 may include magnetic card readers, scanners, or other such commercial exchange devices that interface with credit cards or other electronic financial instruments.

Once an activation condition is detected in block 216, then the exchange logic 150 progresses to connector A as shown. Otherwise, the exchange logic 150 reverts back to block 203. In this manner, the exchange logic 150 continually loops through

blocks 203, 209 and 216 until a condition exists such that the loop is interrupted as shown.

With reference to FIGS. 2B, 2C, and 2D, shown are flow charts of a data exchange portion of the exchange logic 150. Beginning at connector A, once the activation condition exists, the exchange logic 150 progresses to block 219 in which the exchange logic 150 polls the personal appliance 146 via the personal appliance device interface 133 for a device designation that uniquely identifies the particular personal appliance 146. Note that this requires that the personal appliance 146 be linked with the personal appliance interface 133 via an appropriate channel. For example, the channel may comprise a hardwire link where the user plugs a cord into the personal appliance 146 and into the personal appliance interface 133. Likewise, a wireless connection may exist between the personal appliance interface 133 and the personal appliance 146 such as an infrared connection or other similar wireless link. The polling signal employed by the exchange logic 150 to obtain the device designation from the personal appliance 146 may comprise a standard polling signal or tone, *etc.*

Thereafter, in block 223, the exchange logic 150 determines whether a reply is received from the personal appliance 146 via the personal appliance interface 133 in response to the polling signal. If no reply is detected in block 223, then the exchange logic 150 moves to block 226 in which the computer system requests a device designation input from the user via the user input devices 143 such as, for example, a keyboard, *etc.* If there is a reply in block 223, or once a device designation has been manually entered into the computer system 106 in block 226, then the exchange logic 150 progresses to block 229 in which the newly received device designation of the particular personal appliance 146 is compared with a number of device designations that correspond with the personal appliance drivers stored in the personal appliance driver library to detect a direct match therebetween. If no direct match is experienced, then the exchange logic 150 moves to connector B. On the other hand, if a direct match is detected, then the exchange logic 150 progresses to block 236.

In block 236, the user enters a destination address in the network 136 via the user-input devices 143 such as, the keyboard or a microphone, using appropriate voice recognition software. Note that the personal appliance 146 may also supply a user defined destination address. Thereafter, the exchange logic 150 moves to block

239 in which the data held by the personal appliance 146 is downloaded into the computer system 106 and thereafter transmitted to the destination address via the network 136. Alternatively, the data held by the personal appliance 146 may be downloaded to the mobile data storage device 119 and stored, for example, on a floppy disk, compact disk, magnetic tape, or mobile hard drive, *etc.* After the download is completed in block 239, the exchange logic 150 moves to connector E which sends the exchange logic 150 back to block 203 of FIG. 2A since the data exchange transaction is complete.

Turning then, to FIG. 2C, shown is the continuation of the exchange logic 150 that is executed when a direct match is not detected in block 233 of FIG. 2B, thereby moving to connector B. From connector B, the logic 150 begins with block 243. In block 243, since no device driver exists in the memory 113 (FIG. 1) of the computer system 106 (FIG. 1) that matches the device designation from the personal appliance 146 (FIG. 1), the exchange logic 150 polls the personal appliance 146 to determine whether the personal appliance 146 includes an appropriate personal appliance driver that will allow the computer system 106 to communicate therewith. If in block 246, the personal appliance 146 includes an appropriate personal appliance driver, then the personal appliance driver is downloaded into an isolated portion of the memory 113.

The driver is downloaded into an isolated portion of the memory to facilitate an exchange of data and does not provide access to the user to other information and/or operability of the computer system 106 to prevent corruption of the exchange logic 150 or otherwise prevent damage to the computer system 106. The isolated memory may be, for example, RAM memory, *etc.* Thereafter, the exchange logic 150 moves to connector C which reverts back to block 236 of the exchange logic 150 as shown in FIG. 2B where the user inputs the destination address of the data to be downloaded.

However, if in block 246, the personal appliance 146 does not include a device driver to download to the computer system 106, then the exchange logic 150 progresses to block 253. In block 253, the exchange logic 150 examines the service provider site 147 on the network 136 (FIG. 1) for any new personal appliance drivers. This is performed in the hope to obtain the driver for the particular personal appliance 146 that the computer system 106 currently does not have. If in block 256 the service provider site 147 does include an appropriate driver, then the exchange logic 150

progresses to block 259 in which the particular personal appliance driver is downloaded into the memory 113 from the service provider site 147 in the network 136.

If, in block 256, there is no compatible driver located on the service provider site 147, then the exchange logic 150 progresses to block 263 in which the user is prompted to input the name of the manufacturer of the particular personal appliance 146. Note that the manufacturer name may be supplied by a user-input device 143 such as a keyboard, or mouse, *etc.* Thereafter, in block 266 the exchange logic 150 performs a search of the personal appliance manufacturer's site 149 via the network 136 for any new personal appliance drivers. Then, in block 269, if an appropriate device driver is found on the personal appliance manufacturer's site 149, then the exchange logic 150 moves to block 273 in which the particular personal appliance driver is downloaded into the memory 113 in order to facilitate communication with the personal appliance 146. Thereafter, the exchange logic 150 reverts back to block 236 of FIG. 2B through connector C. On the other hand, if in block 269 no appropriate driver is found on the personal appliance manufacturer's site 149, then the exchange logic 150 continues to connector D as shown.

Turning then to FIG. 2D, shown is the portion of the exchange logic 150 beginning at connector D. From connector D, the exchange logic 150 moves to block 276 in which the exchange logic 150 causes an inquiry to be displayed on an appropriate output device such as a CRT that asks the user whether they have a device driver for the personal appliance 146 on a mobile memory storage device such as, for example, a floppy disk. In block 279, if the user responds positively to the request of block 276 via the user input devices 143, then the exchange logic 150 progresses to block 283 in which the user is requested to insert the mobile data storage device into the appropriate device drive 119 of the computer system 106. Thereafter, the appropriate device driver is downloaded into an isolated random access memory of the memory 113. Thereafter, the exchange logic 150 moves to block 236 of FIG. 2B via connector C. However, if in block 279, the user has responded negatively to the inquiry of block 276 asking for a device driver on a mobile data storage device, then the exchange logic 150 progresses to block 286.

In block 286, the exchange logic 150 will attempt to establish communication with the personal appliance 146 using the personal appliance drivers stored in the

driver library that have been supplied by the same manufacturer as the current personal appliance 146. In particular, the exchange logic 150 draws an association between the manufacturer type entered earlier by the user and those drivers associated with the particular manufacturer in question. In block 289, if the exchange logic 150 is successful in establishing communication with the personal appliance 146, then the exchange logic 150 reverts back to block 236 of FIG. 2B in which the user is required to input the destination address of the transaction. However, if in block 289, the attempt to establish communication is unsuccessful, then the exchange logic 150 moves to block 293.

In block 293, the exchange logic 150 will then attempt to establish a communication link with the personal appliance 146 using a universal driver stored in the memory 113. Thereafter, in block 296, if communication is successfully established with the personal appliance 146, then once again, the exchange logic 150 reverts back to block 236 of FIG. 2B. Otherwise, the exchange logic 150 moves on to block 299 in which a session failure indication is provided to an output display indicating to the user that communication with the particular personal appliance 146 is not possible as there is no proper personal appliance driver available. At this point, the computer system 106 may cause a refund to be issued to the user via an appropriate output device 139 or by reversing the action of the user input device 143 that receives the currency as part of the activation condition of block 216 of FIG. 2A.

In addition to the foregoing discussion, the logic 150 of the present invention can be implemented in hardware, software, firmware, or a combination thereof. In the preferred embodiment(s), the logic 150 is implemented in software or firmware that is stored in a memory and that is executed by a suitable instruction execution system. If implemented in hardware, as in an alternative embodiment, the logic 150 can implemented with any or a combination of the following technologies, which are all well known in the art: a discrete logic circuit(s) having logic gates for implementing logic functions upon data signals, an application specific integrated circuit having appropriate logic gates, a programmable gate array(s) (PGA), a field programmable gate array (FPGA), etc.

Also, the flow charts of FIGS. 2A-D show the architecture, functionality, and operation of a possible implementation of the logic 150. In this regard, each block represents a module, segment, or portion of code, which comprises one or more

executable instructions for implementing the specified logical function(s). It should also be noted that in some alternative implementations, the functions noted in the blocks may occur out of the order noted in FIGS. 2A-D. For example, two blocks shown in succession in FIGS. 2A-D may in fact be executed substantially concurrently or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved.

Finally, the logic 150, which comprises an ordered listing of executable instructions for implementing logical functions, can be embodied in any computer-readable medium for use by or in connection with an instruction execution system, apparatus, or device, such as a computer-based system, processor-containing system, or other system that can fetch the instructions from the instruction execution system, apparatus, or device and execute the instructions. In the context of this document, a "computer-readable medium" can be any means that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The computer readable medium can be, for example but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples (a nonexhaustive list) of the computer-readable medium would include the following: an electrical connection (electronic) having one or more wires, a portable computer diskette (magnetic), a random access memory (RAM) (magnetic), a read-only memory (ROM) (magnetic), an erasable programmable read-only memory (EPROM or Flash memory) (magnetic), an optical fiber (optical), and a portable compact disc read-only memory (CDROM) (optical). Note that the computer-readable medium could even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via for instance optical scanning of the paper or other medium, then compiled, interpreted or otherwise processed in a suitable manner if necessary, and then stored in a computer memory.

Many variations and modifications may be made to the above-described embodiment(s) of the invention without departing substantially from the spirit and principles of the invention. All such modifications and variations are intended to be included herein within the scope of the present invention.

CLAIMS

What is claimed is:

1. A system for facilitating remote exchange of digital data from a personal appliance (146), comprising:

a stand-alone kiosk (103);

a computer system (106) located in the kiosk (103), the computer system (106) including a processor (109) linked to a local interface (116) and a memory (113) linked to the local interface (116);

a personal appliance interface (133) linked to the local interface (116); and

exchange logic (150) stored on the memory (113) and executed by the processor (109), the exchange logic (150) including:

logic to poll the personal appliance (146) via the personal appliance interface (133) to obtain a personal appliance designation;

logic to compare the personal appliance designation with a number of stored device designations from a driver library to determine an associated personal appliance driver; and

logic to employ the associated personal appliance driver to establish a data transfer link with the personal appliance (146).

2. The system of claim 1, wherein the exchange logic (150) further comprises automated update logic to obtain a new device driver to be stored in the driver library, the automated update logic comprising:

logic to search at least one site (147, 149) on a network (136) for a new device driver; and

logic to download the new device driver into the driver library from the at least one site (147, 149) on the network (136).

3. The system of claim 1, wherein the exchange logic (150) further comprises logic to establish a data communications link with a remote device over a network (136) to download a new device driver.

4. The system of claim 1, wherein the exchange logic (150) further comprises logic to isolate a device driver downloaded from the personal appliance (146) in the memory (113).

5. The system of claim 1, wherein the personal appliance interface (133) includes a hardwire link to the personal appliance (146).

6. The system of claim 1, wherein the personal appliance interface (133) includes a wireless link to the personal appliance (146).

7. A method for facilitating remote exchange of digital data from a personal appliance (146), comprising the steps of:

providing a stand-alone kiosk (103) for digital data exchange;

coupling the personal appliance (146) to a data exchange system to establish data communications therebetween;

polling the personal appliance (146) to obtain a personal appliance designation;

comparing the personal appliance designation with a number of stored device designations from a driver library to determine an associated personal appliance driver; and

employing the associated personal appliance driver to establish a data transfer link with the personal appliance (146).

8. The method of claim 7, further comprising the steps of:

coupling the data exchange system to a network (136);

searching at least one site (147, 149) on the network (136) for a new device driver; and

downloading the new device driver into the driver library from the at least one site (147, 149) on the network (136).

9. The method of claim 7, further comprising the step of establishing a data communications link with a remote device over a network (136) to download a new device driver.

10. The method of claim 7, further comprising the step of isolating a device driver downloaded from the personal appliance (146) in the memory (113).

Application No: GB 0101832.4 **Examiner:** Anna Brandon
Claims searched: 1 to 10 **Date of search:** 23 November 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): G4A (FGDC)

Int Cl (Ed.7): G06K, G06F, G07F

Other: Online: EPODOC, WPI, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
Y	EP 1077427	(NCR INTERNATIONAL INC) paragraphs 31, 56, 72, 73, 74, 76, figs 11 & 12	1 and 7 at least
Y	EP 0860980	(EASTMAN KODAK CO) abstract	1 and 7 at least
Y	WO 0058850	(DODGE JAMES) abstract	1 and 7 at least
Y	FR 2787225	(LEONI JACQUES) abstract	1 and 7 at least
Y	US 6192416	(AAV AUSTRALIA PTY LTD) abstract	1 and 7 at least

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